

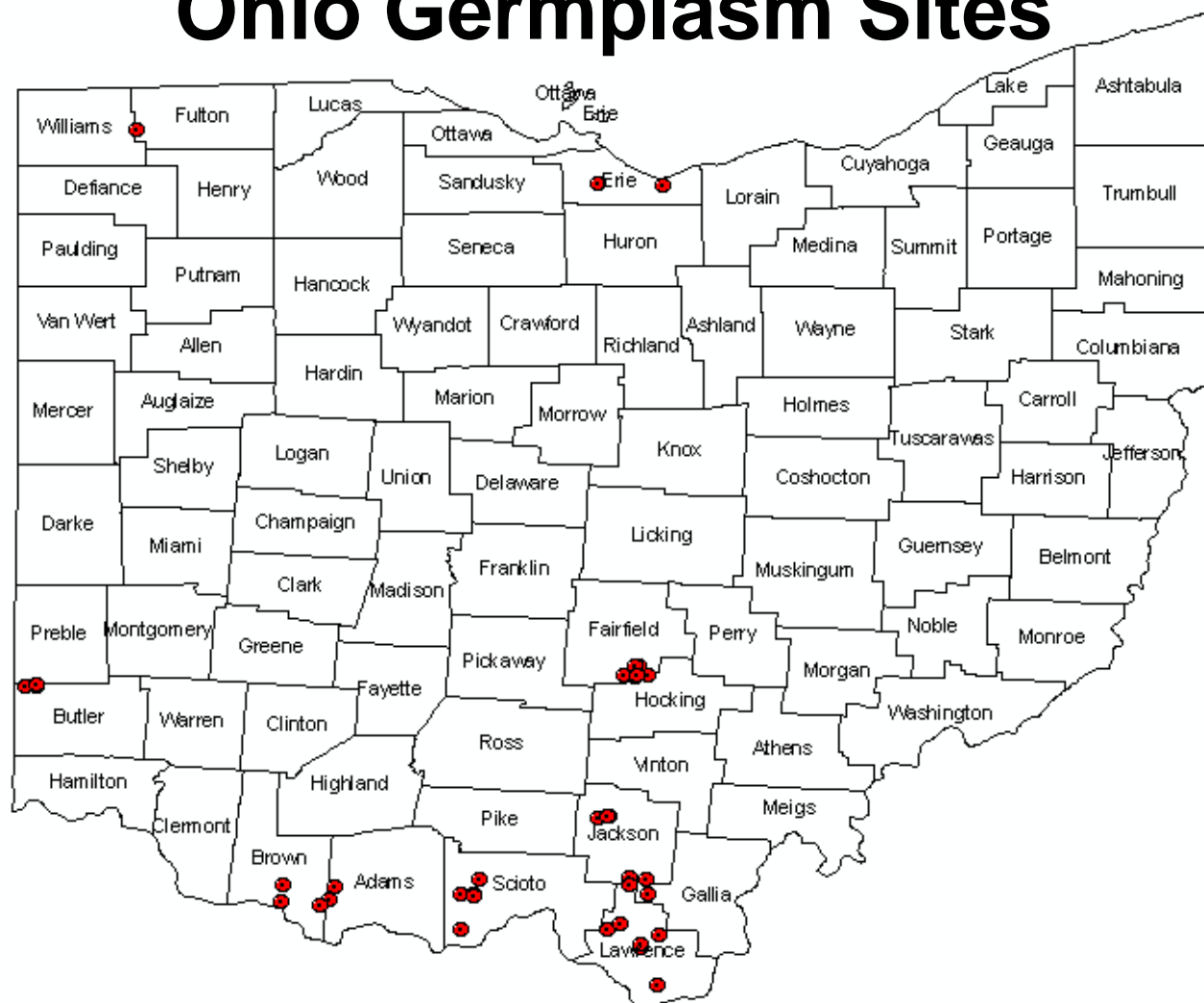
# 2009 Ohio Germplasm Collection Trip

October 14 – 20, 2009



United States Department of Agriculture

# Ohio Germplasm Sites



## Adams County

*Euonymus atropurpureus*  
*Rosa carolina*

## Brown County

*Hydrangea arborescens*  
*Gymnocladus dioicus*  
*Viburnum rufidulum*  
*Viburnum molle*  
*Staphylea trifolia*

## Butler County

*Viburnum molle*  
*Viburnum prunifolium*  
*Viburnum acerifolium*

## Erie County

*Rhus typhina*  
*Prunella vulgaris*  
*Hypericum drummondii*  
*Hypericum gentianoides*

## Fairfield County

*Viburnum acerifolium*  
*Rhododendron maximum*  
*Hydrangea arborescens*

## Fulton County

*Viburnum prunifolium*

## Hocking County

*Viburnum prunifolium*  
*Hydrangea arborescens*  
*Cephalanthus occidentalis*  
*Oxydendrum arboreum*  
*Carpinus caroliniana*

## Jackson County

*Oxydendrum arboreum*  
*Cornus florida*  
*Lindera benzoin*  
*Cornus amomum*  
*Cornus florida*  
*Prunella vulgaris*  
*Monarda fistulosa*  
*Cephalanthus occidentalis*  
*Celastrus scandens*

## Lawrence County

*Viburnum prunifolium*  
*Cercis canadensis*  
*Hydrangea arborescens*  
*Cornus florida*  
*Oxydendrum arboreum*  
*Rhus typhina*  
*Oxydendrum arboreum*

## Scioto County

*Oxydendrum arboreum*  
*Physocarpus opulifolius*  
*Betula lenta*  
*Magnolia tripetala*  
*Rhus copallinum*

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# Introduction

The USDA-ARS Plant Introduction Station (Ames, IA) and the Woody Landscape Plant Germplasm Repository (Beltsville, MD) completed a collection trip to Ohio in 2009. Funding was supported by the USDA Plant Exploration Program, which is coordinated by the Plant Exchange Office, National Germplasm Resources Laboratory, USDA-ARS, Beltsville, Maryland. Participants included:

- **Jeffrey D. Carstens**, Agricultural Science Research Technician, USDA-ARS Plant Introduction Station, Ames, IA (left)
- **Martin Scanlon**, Agricultural Science Research Technician, USDA-ARS Woody Landscape Plant Germplasm Repository, Beltsville, MD (right)



The objectives were to:

- Identify, voucher, and collect germplasm of NPGS genera within Ohio
- Document *Fraxinus* germplasm not already represented at the USDA-ARS Plant Introduction Station in Ames, Iowa
- Store and backup collections at the pertinent active site in the U.S. National Plant Germplasm System and the National Center for Genetic Resources Preservation in Fort Collins, Colorado, respectively
- Ultimately conserve and preserve genetic diversity of native, ornamental plant germplasm

# Collection Trip Plan

## **Wednesday, 14 October 2009**

Check Old Gillett Farm near Elkhart, IL for *Gymnocladus dioicus* seeds; stop at Hueston Woods near College Corner, OH to look for *Viburnum molle*; meet up with Martin Scanlon in Heath, OH

## **Thursday, 15 October 2009**

Meet with horticulturist Richard Larson from the Dawes Arboretum; explore areas near Wahkeena Nature Preserve and along Clear Creek, Fairfield and Hocking County, Ohio, respectively; check out *Rhododendron calendulacium* population in Pike County, Ohio; explore Lake Katherine State Nature Preserve; spend the night in Jackson, OH

## **Friday, 16 October 2009**

Explore areas in Wayne National Forest and Dean State Forest in Lawrence County, Ohio; return to hotel in Jackson, OH

## **Saturday, 17 October 2009**

Investigate areas in Shawnee State Park and Shawnee State Forest in Scioto County, Ohio and surrounding areas; spend the night in Portsmouth, OH

## **Sunday, 18 October 2009**

Continue investigation around Shawnee State Forest; split apart (Martin heading south and Jeff heading north)

## **Monday, 19 October 2009**

Jeff explore areas around Edison Woods near Berlin Heights, OH; possibly collect *Hypericum* in Erie Sand Barrens State Nature Preserve near Bloomingville, OH; visit Goll Woods State Nature Preserve near Archbold, OH; spend night in White Pines Forest State Park, IL

## **Tuesday, 20 October 2009**

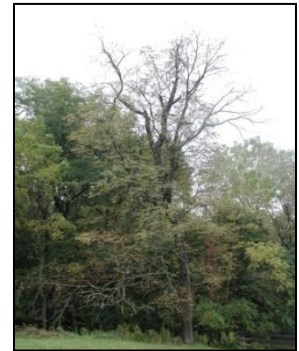
Explore areas around White Pines Forest State Park near Mount Morris, IL; return to Ames, IA

# Daily Log

## Wednesday, 14 October 2009

Heading out of Ames at 4:00a.m. resulted in light traffic making a quick arrival to Elkhart, IL at approximately 9:30a.m. Driving up the Old Gillett Farm lane, one can easily pick out *Gymnocladus dioicus* trees near the edge of the forest. Approximately eight specimens ranging from 48"-67" in circumference and 70'-90' in height were noted on this west facing slope. Only a few seed pods were noted and essentially impossible to access. Continuing southeast past the main house and storage sheds multiple specimens were found with seeds. One specimen measured 88" in circumference. Five trees were sampled. Distance between specimens sampled averaged 150 yards in order to increase the likelihood that sampling was not occurring off clones/siblings. It was interesting to note that majority (90%) of the leaves had dropped from the coffeetrees.

Time was spent with Lisa Pasquesi (owner) explaining how to identify different tree species located on the property. The most prominent species noted include burr oak, osage orange, blue ash, paw paw, and hackberry. Lisa indicated that efforts are currently being pursued to improve forest quality and reestablish prairie habitat at select locations bordering the forested hill.



*Gymnocladus dioicus* – Old Gillett Farm – Logan Co., IL

Thanks to a lead from Richard Larson at the Dawes Arboretum (Newark, OH), my next area to explore was Hueston Woods near College Corner, OH. Richard indicated that *Viburnum molle* is common throughout the "highbanks area" in Hueston Woods. Sure enough, probably 100 specimens of *V. molle* and 25 specimens of *V. acerifolium* were found. Unfortunately, very few fruits were found, but enough were found to justify collection of both species. Other species noted included *Echinacea purpurea*, *Maclura pomifera*, and *Fraxinus quadrangulata*. Before departing, a seed collection of *V. prunifolium* was harvested.



*Viburnum molle* – Hueston Woods – Butler Co., OH

# Daily Log (cont'd)

## Wednesday, 14 October 2009 (cont'd)

Arriving at the hotel shortly before 9:00p.m., Jeff met with Martin where they went out to dinner, discussed projects happening in the NPGS, and determined an appropriate collection route for the following morning.

## Thursday, 15 October 2009

Waking up to light mist and cloudy weather, we headed to the Dawes Arboretum to meet with Richard Larson. Richard led us to our first location near Wahkeena Nature Preserve. Along the road to the preserve, collections of *Rhododendron maximum*, *Hydrangea arborescens*, *Viburnum acerifolium*, and *Tsuga canadensis* were made. Unfortunately, it was later discovered that all *Tsuga* seeds were empty. Nice fall color was noted on *Carpinus caroliniana*, which were not bearing seeds.

Continuing south a couple miles, we scanned areas along Clear Creek and were able to make collections of *Viburnum prunifolium*, *Hydrangea arborescens*, *Cephalanthus occidentalis*, *Oxydendrum arboreum*, and *Carpinus caroliniana*. A few specimens of *Fraxinus nigra* were noted, but one would most likely consider this species uncommon. Seed production on *Fraxinus nigra* and *Fraxinus pennsylvanica* was not noted.

Our next location found us entering Pike County. Richard informed us of some work completed in the early 1990's documenting native *Azalea* and *Rhododendron* populations in the midwestern U.S. (Widrechner et al., 1993). After further discussion, Martin mentioned there were a couple of *Rhododendron* accessions growing at the National Arboretum including a *R. calendulaceum* with only a "Pike Co. OH" label. Richard quickly indicated that seed samples were shared with the American Rhododendron Society and the National Arboretum. Now, passport data and GRIN numbers can be assigned to these *Rhododendron* accessions which have been maintained at the arboretum for almost 20 years.



*Rhododendron calendulaceum* – Pike Co., OH

# Daily Log (cont'd)

## Thursday, 15 October 2009 (cont'd)

After spending a couple hours trying to locate the *R. calendulaceum* population, it was obvious that population size drastically declined. Richard indicated the population size in the early 1990's was approximately 25-30 plants. Our efforts resulted in finding only one plant. This is a clear sign that collecting native, woody ornamental, understory plants in the future may be harder due to changes in climate and vegetation, human disturbance, invasive species, and possible animal foraging.

Martin and Jeff then continued south to explore areas around Lake Katherine. After passing numerous plants of *Cornus florida* and *Lindera benzoin* throughout the morning without fruits, we were able to make a nice collection of both species at Lake Katherine. *Magnolia tripetala* and *Tsuga canadensis* were noted as associated species. A seed collection from four plants of *Oxydendrum arboreum*, all of which were displaying beautiful, red fall color was made.

## Friday, 16 October 2009

It was decided to head southeast towards the Ohio River and loop back to spend another night in Jackson, OH. Areas to explore included Wayne National Forest and Dean State Forest. Our first stop was just south of Kitchen, OH, where a very large population of green ash was noted. Associated species included *Cornus amomum* subsp. *obliqua*, *Cephalanthus occidentalis*, and *Quercus bicolor*. Unfortunately no seeds were found on green ash, but a seed sample of *C. amomum* subsp. *obliqua* was harvested. Continuing south we came across a couple acres of wet prairie with a diverse group of genera. Seed collections from nice population sizes were made on *Cornus florida*, *Prunella vulgaris*, and *Monarda fistulosa*.

Making our way towards the Ohio River, we scanned road ditches which resulted in finding a nice population of *Viburnum prunifolium* to sample. It was interesting to note that the closer one got to the river, the more urbanized the land became.

# Daily Log (cont'd)

## Friday, 16 October 2009(cont'd)

Our next stop was an interesting knoll with lots of *Cercis canadensis*. Martin indicated that it would probably be good to have an Ohio redbud population represented in the NPGS. Numerous plants were sampled, but seed quality looked a little poor. In order to compensate for poor quality seeds, additional pods were harvested. After reaching the top of the knoll we started our decent on a road with north-facing slopes.

These steep rocky slopes supported a nice population of *Hydrangea arborescens* resulting in a collection. Throughout the collection trip, additional populations of *H. arborescens* were discovered under similar habitat conditions.

Continuing on, we eventually came across a heavily fruiting population of *Cornus florida*. At prior locations, most *C. florida* populations encountered were at or slightly past peak fall color. Surprisingly, this population located along Aaron Creek Road had dropped the majority of it's leaves, yet fruits continued to persist.

Our next stop was at Dean State Forest. This area was approximately 100 meters higher than all other areas visited throughout the trip. An unexplained population of *Oxydendrum*, which typically inhabits creek and lake edges was found growing at these high elevations and therefore harvested. After closer inspections, seeps were noted, thereby possibly accounting for the unusual presence. Seeds were also harvested from a nice population of *Rhus typhina*.



*Hydrangea arborescens* site – Lawrence Co., OH



*Cornus florida* – Lawrence Co., OH

# Daily Log (cont'd)

## Friday, 16 October 2009(cont'd)

As day light started to dwindle, we thought it was time to start heading back to Jackson. While scanning the roadsides, we noticed a nice, scattered population of *Oxydendrum arboreum* from which we were able to sample 10 plants. The area sampled covered approximately a quarter of a square mile. After loading up the van, we didn't even travel one mile and stopped again to harvest *Cephalanthus occidentalis* and *Celastrus scandens*. This area was most likely overflow from Cub Run Creek, making a perfect habitat for buttonbush.

## Saturday, 17 October 2009

After making a pretty good sweep through Wayne National Forest, it was decided to head southwest to explore areas throughout Scioto County including Shawnee State Park and State Forest. Our goal for the day was to try to find seeds of *Magnolia* and *Chionanthus*, which have both been documented in Scioto County. Shortly after entering Shawnee State Park, we noted a couple *Magnolia tripetala* specimens and a single plant of *Cornus alternifolia*. Additional exploring led to a nice population of *C. alternifolia* (25-30 plants) located along Pond Lick Road. While working in Shawnee State Park, naturalist Jenny Richards (Ohio Department of Natural Resources) inquired about our business. We explained our purpose to collect and preserve germplasm. Jenny realized our interest in fringetree and indicated its presence along Snake Hollow Trail. Making our way to Snake Hollow Trail, we noticed a couple specimens of *Oxydendrum arboreum* to justify making a collection. The rest of the morning was spent looking for *Chionanthus*. Unfortunately, only one plant was found, but a nice population of *Physocarpus opulifolius* was noted and sampled. At that point it was decided that it was not worth spending additional time looking for *Chionanthus* and that other areas should be targeted for exploration.

After returning to Ames, a phone call was made to Jenny Richards to inform her that the population of *Chionanthus* was not discovered. It was assumed that we misunderstood directions. Jenny happily agreed to check on the population only to discover that the population of *Chionanthus* was no longer persisting. Discussions concluded potential difficulty for this species to compete most likely due to changes in climate, possibly management, and increasing plant competition.

# Daily Log (cont'd)

## Saturday, 17 October 2009 (cont'd)

Before leaving Shawnee State Forest, we spotted a fairly large (50+) population of *Magnolia tripetala* growing on a southeast-facing slope (45 degrees). Due to human manipulation, all vegetation in this area had been cutback to ground level, which the *Magnolia* responded to quite well. Approximately 20 seed pods were found, but only a few good seeds. Martin and Jeff quickly concluded that *M. tripetala* should have been harvested three weeks earlier.



*Magnolia tripetala* – Scioto Co., OH

Shortly before leaving, we harvested seeds from four *Betula lenta* in peak, yellow fall color.

Our next destination was to explore areas near Bacon Flat, OH which according to Jenny Richards has native *Gymnocladus dioicus*. Unfortunately, no specimens were noted. On the other hand, a nice population of *Rhus aromatica* located along Cemetery Road just east of Ohio State Route 41 between Locust Grove and Bacon Flat, OH was marked for future collection.

Further correspondence with Jenny resulted in getting contact information for the Highland Nature Sanctuary that maintains property containing Kentucky Coffeetrees. Future collaboration may result in getting seeds shipped to NCRPIS by a Highland Nature Sanctuary employee.

# Daily Log (cont'd)

## Saturday, 17 October 2009 (cont'd)

Finishing up the day with only four accessions, we realized there was an obvious difference in both seed production and species diversity when comparing habitats east and west of the Scioto River. Martin and Jeff agreed that it would be good to start heading back to Portsmouth to finish recording data. With a little bit of daylight left, we were able to make one last, quick seed sample from a population of *Rhus copallinum* exhibiting beautiful red fall color.

## Sunday, 18 October 2009

The previous evening, we agreed to head back to Bacon Flat, OH in order to explore adjacent areas already covered in hopes to find a population of Kentucky Coffeetree. After heading west along Ohio State Highway 52, we headed north on Old U.S. 68 where we spotted and harvested from a population of *Hydrangea arborescens*. Eventually we found one female specimen of *Gymocladus* along U.S. 68 just east of Georgetown. We spent a fair amount of time scanning areas nearby in hopes to find additional specimens, but were unsuccessful. Therefore we decided that harvesting from a single tree to represent an accession could be accepted as this species may be uncommon. Due to the height of seed pods and surrounding vegetation, a large amount of time was needed to make a substantial harvest.

Our next collection site just south of Neel, OH was very exciting. A southeast facing slope along Suck Run Road allowed us to sample an undocumented population of *Viburnum molle*. An abundant population (100+) was noted growing along Suck Run Creek and nearby slopes with slightly higher pH soils than surrounding areas. Unfortunately, only a handful of specimens were noted with fruits. Eventhough only a few fruits were noted, collection was justified as this species is currently on the endangered species list in Ohio. To make the afternoon even more exciting, seed harvests were made from *Viburnum rufidulum* and *Staphylea*, which were growing in association with *V. molle*. *Fraxinus quadrangulata* was also marked as a future collection site.

Continuing along Suck Run Road, a population of *Euonymus atropurpureus* with outstanding red fall color and mature fruits was spotted. Five specimens were sampled. It was interesting to note *Frangula caroliniana* as an associate species, as it had not been noted at other sites.

# Daily Log (cont'd)

## **Sunday, 18 October 2009 (cont'd)**

Before taking a quick lunch we noted a population of *Rosa carolina* growing in the road ditch along White Oak Road. Due to its interesting, low growth habit and showy hips, a seed collection was made.

After finishing up a few loose ends and reorganizing collecting materials and having lunch in West Union, OH, Jeff headed north to Berlin Heights, OH and Martin headed south to Kentucky.

## **Monday, 19 October 2009**

Jeff started out his early morning exploration at Edison Woods specifically to look for black ash. Unfortunately, no black trees were noted, but green and white ash were noted (no seed production). Since only a small portion of the woods was explored, it is possible that pockets of black ash may exist. Due to the extreme density resulting in tall, lean trees, harvesting seeds there would be very difficult.



Edison Woods State Nature Preserve – Erie Co., OH

The next site visited was Erie Sand Barrens where information from Rick Gardner (Ohio Division of Natural Areas and Preserves) verified the presence of *Hypericum drummondii*. Quite a bit of time was spent trying to find this species. Eventually it was discovered that crawling on one's hands and knees made it slightly easier to find these tiny, 2" tall specimens. Upon close inspection it was obvious that there were possibly two different species based on plant height and inflorescence size. Since it is possible that both *H. drummondii* and *H. gentianoides* were present, samples were kept separate based on morphological characteristics. Both species most likely prefer very dry, sandy habitats with little to no competition. It was interesting to note sand club moss (*Selaginella rupestris*) growing in association with the *Hypericum*. Due to the abundance of *Prunella vulgaris*, a seed collection of it was also made.

# Daily Log (cont'd)

## Monday, 19 October 2009 (cont'd)

The last stop for the day was at Goll Woods State Nature Preserve near Archbold, OH. A fair number of green ash trees and a few black ash trees were noted. All specimens were void of seeds. It was interesting to note that the forest floor seemed to be dominated by black ash seedlings. A fair number of *Viburnum prunifolium* specimens were noted with fruits just west of Goll Woods along County Road F and were therefore harvested. The rest of the afternoon was spent traveling to White Pines Inn located in White Pines Forest State Park near Mount Morris, IL.

## Tuesday, 20 October 2009

Majority of the morning at White Pines Forest State Park was spent looking for fruits on *Viburnum prunifolium*, previously identified during reconnaissance.

Unfortunately, no fruits were found most likely due to the late date. Would recommend harvesting two weeks earlier. A few scattered individuals of Kentucky Coffeetree were noted which were not bearing seeds.

A nice find at White Pines Forest State Park included a sizeable population of *Diervilla lonicera* growing on a north facing slope near Pine Creek. Unfortunately, no seed pods were found.



*Diervilla lonicera* – Ogle Co. IL

After covering quite a bit of ground, Jeff decided to head back to Ames.

# Trip Summary

Throughout the collection trip, thousands of white ash trees were noted throughout Illinois, Indiana, and western Ohio. Surprisingly, all these white ash trees lacked seeds. In a good seed production year, it would be very easy to harvest seeds via roadsides. In addition, only one sizeable population of green ash near Kitchen, OH was marked for future collection. It was interesting to note throughout southern Ohio that majority of the white ash had completely dropped all of their leaves, and the few specimens of *Fraxinus pennsylvanica* bearing minimal quantities of seeds were well past maturity. Therefore, optimal timing for collecting ash seeds in southern Ohio should be targeted for early October.

It was interesting to note the abundance of *Lindera benzoin* and *Carpinus caroliniana* throughout areas explored in Ohio. Unfortunately, seed production for these species was either very poor or timing was too late. Overall, timing of seed collection for southern Ohio was good as we were able to collect 27 different genera. Scheduling future collection trips approximately one to two weeks earlier will better target seed collections of *Cornus florida*, *L. benzoin*, *C. caroliniana*, *Magnolia* spp., and *Cornus amomum* subsp. *obliqua*, as these species seemed to be past peak fruit maturation throughout the trip.

Trying to find *Rhododendron calendulaceum* or *Chionanthus virginicus* in previously documented locations was difficult due to decreased population size. This increased our awareness of plant competition and presence of invasive species which may make locating native plants (understory species) in the future difficult.

Finding *Viburnum rufidulum* and *Viburnum molle* in Brown Co., Ohio was an exciting highlight of the trip. *Viburnum molle* had not been documented in Brown Co., but has been verified (Braun 1961) in Highland County (adjacent county to the north). It is currently on the endangered species list for the state of Ohio. In addition, our collection of *V. rufidulum* represents the northernmost, native accession represented in the NPGS.

## Trip Summary (cont'd)

Upon completion of this collection trip, 45 accessions were collected. Nine accessions (5 – *Oxydendrum*, 4 – *Hydrangea*, 1 – *Cephalanthus*) had enough seeds harvested to be backed up at the National Center for Genetic Resources Preservation. During the mid-September Wisconsin-Illinois collection trip, which was well outlined following a reconnaissance trip (8 accessions collected during reconnaissance), 55 accessions were also collected. Although one may question the necessity of a reconnaissance trip, knowing what is present at a given location helps estimate the time needed to collect, better determine where to spend the night, and selectively target collections with a known population size bearing seeds. Selection criteria are generally based on plant associates/habitat, watersheds, and distance. Harvesting accessions based on selection criteria helps aid in building collections aimed at increasing genetic variation. Without a reconnaissance trip, it is not reasonable to bypass an area with a given species/population bearing seeds as it is unknown whether another situation of similar circumstances will be encountered. In addition, reconnaissance trips typically result in seed harvests of species that mature in mid-late summer (e.g. *Fraxinus quadrangulata*, *Cornus alternifolia*, *Cornus rugosa*, and *Allium* spp.)

This collection trip was the first opportunity for both Martin and Jeff to work together. Both have completed collection trips in the past, but past trips were accompanied either by colleagues not associated with the NPGS or immediate (same station) NPGS employees. It was an excellent opportunity to discuss collecting strategies, seed cleaning/processing ideas, how to efficiently document collections, and harvesting techniques. Additional topics that Martin and Jeff discussed included how to identify a high quality, native population, making balanced samples, utilizing a stratified sampling approach, and the upcoming release of GRIN global.

Part of the NPGS's mission is to ensure the conservation of genetically diverse germplasm. In order to meet these goals, Martin and Jeff agreed how important it is in collecting seeds from multiple specimens within a population. This helps increase genetic diversity and the likelihood of preserving a collection (reduced inbreeding) within the NPGS. Collecting practices of other horticulture professionals employed with botanical gardens/arboreta sometime tend to downplay collecting from multiple individuals within a population. Their collecting guidelines tend to solely be focused on collecting seeds to simply get representation of a species for addition into a collection or to harvest from the best specimen within a population. Within the NPGS, a calculated effort is made towards collecting all genetic diversity including genetics which may not be desirable today, but useful for tomorrow.

# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/GD/2009/074/224

Scientific Name: *Gymnocladus dioica* (L.) K. Koch

Date: 14 October 2009

County, State: LOGAN COUNTY, ILLINOIS

Elevation: 214 m.

Latitude: 40.01300°N

Longitude: 89.47500°W (NAD83)

Locality: Old Gillett Farm, T18N, R3W, SE1/4 NW1/4 Sec. 18, Broadwell Quad.

Herbarium Specimen: no

Plant associates: *Fraxinus quadrangulata*, *Quercus macrocarpa*, *Asimina triloba*, *Maclura pomifera*, *Prunus serotina*, and *Celtis occidentalis*.

Biomass Type (seed, plant, cutting, herbarium specimen): SD

Collectors: Jeffrey D. Carstens

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Collection Number: JDC/VM/2009/075/225

Scientific Name: *Viburnum molle* Michx.

Date: 14 October 2009

County, State: BUTLER COUNTY, OHIO

Elevation: 258 m.

Latitude: 39.5529°N

Longitude: 84.7336°W (NAD83)

Locality: T5N, R1E, SE1/4 SW1/4 Sec. 2, Oxford Quad.

Herbarium Specimen: yes

Plant associates: *Viburnum acerifolium*, *Viburnum prunifolium*, *Fraxinus quadrangulata*, *Platanus occidentalis*, *Asimina triloba*, *Carpinus caroliniana*, *Ligustrum vulgare*, *Echinacea purpurea*, *Sorghastrum nutans*, *Maclura pomifera*, *Fraxinus americana*, *Juniperus virginiana*, *Acer saccharum*, and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD

Collectors: Jeffrey D. Carstens

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Collection Number: JDC/VP/2009/076/226

Scientific Name: *Viburnum prunifolium* L.

Date: 14 October 2009

County, State: BUTLER COUNTY, OHIO

Elevation: 305 m.

Latitude: 39.5624°N

Longitude: 84.73355°W (NAD83)

Locality: T5N, R1E, SE1/4 NW1/4 Sec. 2, Oxford Quad.

Herbarium Specimen: yes

Plant associates: *Viburnum acerifolium*, *Viburnum molle*, *Fraxinus quadrangulata*, *Platanus occidentalis*, *Asimina triloba*, *Carpinus caroliniana*, *Ligustrum vulgare*, *Echinacea purpurea*, *Sorghastrum nutans*, *Maclura pomifera*, *Fraxinus americana*, *Juniperus virginiana*, *Acer saccharum*, and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD

Collectors: Jeffrey D. Carstens

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Collection Number: JDC/VA/2009/077/227

Scientific Name: *Viburnum acerifolium* L.

Date: 14 October 2009

County, State: BUTLER COUNTY, OHIO

Elevation: 275 m.

Latitude: 39.5523°N

Longitude: 84.73239°W (NAD83)

Locality: T5N, R1E, SE1/4 SW1/4 Sec. 2, Oxford Quad.

Herbarium Specimen: yes

Plant associates: *Viburnum prunifolium*, *Viburnum molle*, *Fraxinus quadrangulata*, *Platanus occidentalis*, *Asimina triloba*, *Carpinus caroliniana*, *Ligustrum vulgare*, *Echinacea purpurea*, *Sorghastrum nutans*, *Maclura pomifera*, *Fraxinus americana*, *Juniperus virginiana*, *Acer saccharum*, and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD

Collectors: Jeffrey D. Carstens

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/VA/2009/078/228

Scientific Name: *Viburnum acerifolium* L

Date: 15 October 2009

County, State: FAIRFIELD COUNTY, OHIO

Elevation: 282 m.

Latitude: 39.628°N

Longitude: 82.57521°W (NAD83)

Locality: T13N, R18W, NE1/4 SE1/4 Sec. 5, Lancaster Quad.

Herbarium Specimen: yes

Plant associates: *Tsuga canadensis*, *Viburnum acerifolium*, *Rhododendron maximum*, *Carpinus caroliniana*, *Ilex verticillata*, *Fagus sylvatica*, and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD

Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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Collection Number: JDC/TC/2009/079/229

Scientific Name: *Tsuga canadensis* (L.) Carrière

Date: 15 October 2009

County, State: FAIRFIELD COUNTY, OHIO

Elevation: 253 m.

Latitude: 39.6297°N

Longitude: 82.5674°W (NAD83)

Locality: T13N, R18W, SW1/4 NW1/4 Sec. 4, Lancaster Quad.

Herbarium Specimen: yes (specimen was not deposited due to poor quality)

Plant associates: *Viburnum acerifolium*, *Rhododendron maximum*, *Carpinus caroliniana*, *Ilex verticillata*, *Fagus sylvatica*, and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD (seed empty – not added to NPGS collections)

Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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Collection Number: JDC/RM/2009/080/230

Scientific Name: *Rhododendron maximum* L.

Date: 15 October 2009

County, State: FAIRFIELD COUNTY, OHIO

Elevation: 253 m.

Latitude: 39.6297°N

Longitude: 82.5674°W (NAD83)

Locality: T13N, R18W, SW1/4 NW1/4 Sec. 4, Lancaster Quad.

Herbarium Specimen: yes

Plant associates: *Tsuga canadensis*, *Viburnum acerifolium*, *Carpinus caroliniana*, *Ilex verticillata*, *Fagus sylvatica*, and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD

Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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Collection Number: JDC/HA/2009/081/231

Scientific Name: *Hydrangea arborescens* L.

Date: 15 October 2009

County, State: FAIRFIELD COUNTY, OHIO

Elevation: 253 m.

Latitude: 39.6297°N

Longitude: 82.5674°W (NAD83)

Locality: T13N, R18W, SW1/4 NW1/4 Sec. 4, Lancaster Quad.

Herbarium Specimen: yes

Plant associates: *Tsuga canadensis*, *Viburnum acerifolium*, *Rhododendron maximum*, *Carpinus caroliniana*, *Ilex verticillata*, *Fagus sylvatica*, and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD

Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/VP/2009/082/232  
Scientific Name: *Viburnum prunifolium* L.  
Date: 15 October 2009  
County, State: HOCKING COUNTY, OHIO  
Elevation: 246 m.  
Latitude: 39.5908°N  
Longitude: 82.5716°W (NAD83)  
Locality: T13N, R18W, NW1/4 NW1/4 Sec. 21, Rockbridge Quad.  
Herbarium Specimen: yes  
Plant associates: *Rhus* sp., *Carpinus caroliniana*, *Cornus florida* and *Ulmus* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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Collection Number: JDC/HA/2009/083/233  
Scientific Name: *Hydrangea arborescens* L.  
Date: 15 October 2009  
County, State: HOCKING COUNTY, OHIO  
Elevation: 247 m.  
Latitude: 39.588°N  
Longitude: 82.5771°W (NAD83)  
Locality: T13N, R18W, NE1/4 NE1/4 Sec. 20, Rockbridge Quad.  
Herbarium Specimen: no  
Plant associates: *Rhododendron maximum*, *Viburnum acerifolium*, *Carya* sp., *Hamamelis virginiana*, and *Tsuga canadensis*.  
Biomass Type (seed, plant, cutting, herbarium specimen): SD  
Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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Collection Number: JDC/CO/2009/084/234  
Scientific Name: *Cephalanthus occidentalis* L.  
Date: 15 October 2009  
County, State: HOCKING COUNTY, OHIO  
Elevation: 246 m.  
Latitude: 39.5936°N  
Longitude: 82.6194°W (NAD83)  
Locality: T13N, R19W, SE1/4 SE1/4 Sec. 13, Rockbridge Quad.  
Herbarium Specimen: yes  
Plant associates: *Fraxinus nigra*, *Fraxinus pennsylvanica*, *Acer negundo*, *Populus tremuloides*, *Juglans nigra*, and *Viburnum prunifolium*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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Collection Number: JDC/OA/2009/085/235  
Scientific Name: *Oxydendrum arboreum* (L.) DC.  
Date: 15 October 2009  
County, State: HOCKING COUNTY, OHIO  
Elevation: 246 m.  
Latitude: 39.5936°N  
Longitude: 82.6194°W (NAD83)  
Locality: T13N, R19W, SE1/4 SE1/4 Sec. 13, Rockbridge Quad.  
Herbarium Specimen: yes  
Plant associates: *Nyssa sylvatica*, *Quercus* sp., *Carpinus caroliniana*, *Hamamelis virginiana*, *Acer rubrum*, *Cephalanthus occidentalis*, *Asimina triloba*, *Cornus florida*, and *Carya* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/CC/2009/086/236  
Scientific Name: *Carpinus caroliniana* Walter  
Date: 15 October 2009  
County, State: HOCKING COUNTY, OHIO  
Elevation: 246 m.  
Latitude: 39.5936°N  
Longitude: 82.6194°W (NAD83)  
Locality: T13N, R19W, SE1/4 SE1/4 Sec. 13, Rockbridge Quad.  
Herbarium Specimen: yes  
Plant associates: *Nyssa sylvatica*, *Quercus* sp., *Oxydendrum arboreum*, *Hamamelis virginiana*, *Acer rubrum*, *Cephalanthus occidentalis*, *Asimina triloba*, *Cornus florida*, and *Carya* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens, Martin Scanlon, and Richard A. Larson

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Collection Number: JDC/OA/2009/087/237  
Scientific Name: *Oxydendrum arboreum* (L.) DC.  
Date: 15 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 225 m.  
Latitude: 39.0845°N  
Longitude: 82.6782°W (NAD83)  
Locality: T7N, R19W, SW1/4 NW1/4 Sec. 13, Jackson Quad.  
Herbarium Specimen: yes  
Plant associates: *Acer saccharum*, *Sassafras albidum*, *Tsuga canadensis*, *Cornus florida*, *Lindera benzoin*, *Nyssa sylvatica*, and *Magnolia tripetala*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/CF/2009/088/238  
Scientific Name: *Cornus florida* L.  
Date: 15 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 239 m.  
Latitude: 39.0845°N  
Longitude: 82.67001°W (NAD83)  
Locality: T7N, R19W, SW1/4 NE1/4 Sec. 13, Jackson Quad.  
Herbarium Specimen: yes  
Plant associates: *Rhus copallinum*, *Carpinus caroliniana*, *Viburnum prunifolium*, *Pinus virginiana*, and *Juniperus virginiana*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/LB/2009/089/239  
Scientific Name: *Lindera benzoin* (L.) Blume  
Date: 15 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 236 m.  
Latitude: 39.0824°N  
Longitude: 82.67762°W (NAD83)  
Locality: T7N, R19W, SW1/4 NW1/4 Sec. 13, Jackson Quad.  
Herbarium Specimen: yes  
Plant associates: *Magnolia tripetala*, *Tsuga canadensis*, *Oxydendrum arboreum*, *Cornus florida*, *Acer saccharum*, and *Quercus* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/CA/2009/090/240  
Scientific Name: *Cornus amomum* Mill. subsp. *obliqua* (Raf.) J.S. Wilson  
Date: 16 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 204 m.  
Latitude: 38.8616°N  
Longitude: 82.5381°W (NAD83)  
Locality: T6N, R17W, NW1/4 NE1/4 Sec. 5, Gallia Quad.  
Herbarium Specimen: yes  
Plant associates: *Platanus occidentalis*, *Quercus bicolor*, and *Fraxinus pennsylvanica*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/CF/2009/091/241  
Scientific Name: *Cornus florida* L.  
Date: 16 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 210 m.  
Latitude: 38.8076°N  
Longitude: 82.5299°W (NAD83)  
Locality: T6N, R17W, SE1/4 SW1/4 Sec. 21, Gallia Quad.  
Herbarium Specimen: yes  
Plant associates: *Hypericum densiflorum*, *Rhus copallinum*, *Eupatorium maculatum*, *Penstemon digitalis*, *Solidago* sp., *Acer saccharum*, *Cephalanthus occidentalis*, *Liriodendron tulipifera*, *Pinus virginiana*, *Sassafras albidum*, *Prunella vulgaris*, and *Monarda fistulosa*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/PV/2009/092/242  
Scientific Name: *Prunella vulgaris* L.  
Date: 16 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 210 m.  
Latitude: 38.8076°N  
Longitude: 82.5299°W (NAD83)  
Locality: T6N, R17W, SE1/4 SW1/4 Sec. 21, Gallia Quad.  
Herbarium Specimen: no  
Plant associates: *Hypericum densiflorum*, *Rhus copallinum*, *Eupatorium maculatum*, *Penstemon digitalis*, *Solidago* sp., *Acer saccharum*, *Cephalanthus occidentalis*, *Liriodendron tulipifera*, *Pinus virginiana*, *Sassafras albidum*, *Cornus florida*, and *Monarda fistulosa*.  
Biomass Type (seed, plant, cutting, herbarium specimen): SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/MF/2009/093/243  
Scientific Name: *Monarda fistulosa* L.  
Date: 16 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 210 m.  
Latitude: 38.8076°N  
Longitude: 82.5299°W (NAD83)  
Locality: T6N, R17W, SE1/4 SW1/4 Sec. 21, Gallia Quad.  
Herbarium Specimen: yes  
Plant associates: *Hypericum densiflorum*, *Rhus copallinum*, *Eupatorium maculatum*, *Penstemon digitalis*, *Solidago* sp., *Acer saccharum*, *Cephalanthus occidentalis*, *Liriodendron tulipifera*, *Pinus virginiana*, *Sassafras albidum*, *Cornus florida*, and *Prunella vulgaris*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/VP/2009/094/244  
Scientific Name: *Viburnum prunifolium* L.  
Date: 16 October 2009  
County, State: LAWRENCE COUNTY, OHIO  
Elevation: 199 m.  
Latitude: 38.4805°N  
Longitude: 82.49475°W (NAD83)  
Locality: T2N, R17W, NW1/4 SE1/4 Sec. 12, Huntington WV & OH Quad.  
Herbarium Specimen: yes  
Plant associates: *Clematis virginiana*, *Diospyros virginiana*, *Carya* sp., *Juglans nigra*, *Platanus occidentalis*, and *Quercus* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/CC/2009/095/245  
Scientific Name: *Cercis canadensis* L.  
Date: 16 October 2009  
County, State: LAWRENCE COUNTY, OHIO  
Elevation: 285 m.  
Latitude: 38.6157°N  
Longitude: 82.55613°W (NAD83)  
Locality: T4N, R17W, SW1/4 SE1/4 Sec. 29, Kitts Hill Quad.  
Herbarium Specimen: yes  
Plant associates: *Rhus* sp., *Quercus* sp., *Acer saccharum* and *Fraxinus americana*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/HA/2009/096/246  
Scientific Name: *Hydrangea arborescens* L.  
Date: 16 October 2009  
County, State: LAWRENCE COUNTY, OHIO  
Elevation: 262 m.  
Latitude: 38.6231°N  
Longitude: 82.5563°W (NAD83)  
Locality: T4N, R17W, NE1/4 NE1/4 Sec. 29, Kitts Hill Quad.  
Herbarium Specimen: yes  
Plant associates: *Acer rubrum*, *Liriodendron tulipifera*, *Cercis canadensis*, and *Carya* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/CF/2009/097/247  
Scientific Name: *Cornus florida* L.  
Date: 16 October 2009  
County, State: LAWRENCE COUNTY, OHIO  
Elevation: 195 m.  
Latitude: 38.6592°N  
Longitude: 82.49117°W (NAD83)  
Locality: T4N, R17W, NW1/4 SW1/4 Sec. 12, Waterloo Quad.  
Herbarium Specimen: yes  
Plant associates: *Cercis canadensis*, *Acer rubrum*, *Sassafras albidum*, *Oxydendrum arboreum*, *Pinus virginiana* and *Rosa multiflora*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/OA/2009/098/248  
Scientific Name: *Oxydendrum arboreum* (L.) DC.  
Date: 16 October 2009  
County, State: LAWRENCE COUNTY, OHIO  
Elevation: 301 m.  
Latitude: 38.6984°N  
Longitude: 82.63227°W (NAD83)  
Locality: T3N, R17W, SE1/4 NE1/4 Sec. 27, Pedro Quad.  
Herbarium Specimen: yes  
Plant associates: *Rhus typhina*, *Sassafras albidum*, *Acer rubrum*, *Juglans nigra*, *Quercus rubra*, *Cercis canadensis* and *Corylus americana*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/RT/2009/099/249  
Scientific Name: *Rhus typhina* L.  
Date: 16 October 2009  
County, State: LAWRENCE COUNTY, OHIO  
Elevation: 298 m.  
Latitude: 38.7003°N  
Longitude: 82.63345°W (NAD83)  
Locality: T3N, R18W, NE1/4 NE1/4 Sec. 27, Pedro Quad.  
Herbarium Specimen: no  
Plant associates: *Rhus typhina*, *Sassafras albidum*, *Acer rubrum*, *Juglans nigra*, *Quercus rubra*, *Cercis canadensis* and *Corylus americana*.  
Biomass Type (seed, plant, cutting, herbarium specimen): SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/OA/2009/100/250  
Scientific Name: *Oxydendrum arboreum* (L.) DC.  
Date: 16 October 2009  
County, State: LAWRENCE COUNTY, OHIO  
Elevation: 221 m.  
Latitude: 38.8379°N  
Longitude: 82.59439°W (NAD83)  
Locality: T4N, R18W, NW1/4 SW1/4 Sec. 1, Gallia Quad.  
Herbarium Specimen: yes  
Plant associates: *Sassafras albidum*, *Quercus* sp., *Platanus occidentalis* and *Acer rubrum*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/CO/2009/101/251  
Scientific Name: *Cephalanthus occidentalis* L.  
Date: 16 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 212 m.  
Latitude: 38.868°N  
Longitude: 82.59698°W (NAD83)  
Locality: T5N, R18W, SW1/4 NE1/4 Sec. 26, Gallia Quad.  
Herbarium Specimen: yes  
Plant associates: *Acer negundo*, *Platanus occidentalis*, *Acer rubrum*, and *Salix* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/CS/2009/102/252  
Scientific Name: *Celastrus scandens* L.  
Date: 16 October 2009  
County, State: JACKSON COUNTY, OHIO  
Elevation: 212 m.  
Latitude: 38.868°N  
Longitude: 82.59698°W (NAD83)  
Locality: T5N, R18W, SW1/4 NE1/4 Sec. 26, Gallia Quad.  
Herbarium Specimen: no  
Plant associates: *Acer negundo*, *Platanus occidentalis*, *Acer rubrum*, and *Salix* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/OA/2009/103/253  
Scientific Name: *Oxydendrum arboreum* (L.) DC.  
Date: 17 October 2009  
County, State: SCIOTO COUNTY, OHIO  
Elevation: 236 m.  
Latitude: 38.8072°N  
Longitude: 83.15559°W (NAD83)  
Locality: Otway Quad.  
Herbarium Specimen: yes  
Plant associates: *Tsuga canadensis*, *Viburnum dentatum*, *Fagus sylvatica*, *Carpinus caroliniana*, *Lindera benzoin*, *Carya* sp., *Sassafras albidum*, *Nyssa sylvatica*, *Corylus americana*, *Picea abies* and *Platanus occidentalis*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/PO/2009/104/254  
Scientific Name: *Physocarpus opulifolius* (L.) Maxim.  
Date: 17 October 2009  
County, State: SCIOTO COUNTY, OHIO  
Elevation: 241 m.  
Latitude: 38.8018°N  
Longitude: 83.15664°W (NAD83)  
Locality: Otway Quad.  
Herbarium Specimen: yes  
Plant associates: *Viburnum dentatum*, *Chionanthus virginicus*, *Platanus occidentalis*, *Acer saccharum*, *Sassafras albidum*, and *Lindera benzoin*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number:  
Scientific Name: *Chionanthus virginicus* L.  
Date: 17 October 2009  
County, State: SCIOTO COUNTY, OHIO  
Elevation: 241 m.  
Latitude: 38.8018°N  
Longitude: 83.15664°W (NAD83)  
Locality: Otway Quad.  
Herbarium Specimen: yes  
Plant associates: *Viburnum dentatum*, *Physocarpus opulifolius*, *Platanus occidentalis*, *Acer saccharum*, *Sassafras albidum*, and *Lindera benzoin*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number:  
Scientific Name: *Cornus alternifolia* L. f.  
Date: 17 October 2009  
County, State: SCIOTO COUNTY, OHIO  
Elevation: 240 m.  
Latitude: 38.9784°N  
Longitude: 83.16209°W (NAD83)  
Locality: Pond Run Quad., near Swanigan Hollow along Pond Lick Road.  
Herbarium Specimen: yes  
Plant associates:  
Biomass Type (seed, plant, cutting, herbarium specimen): HS  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/BL/2009/105/255  
Scientific Name: *Betula lenta* L.  
Date: 17 October 2009  
County, State: SCIOTO COUNTY, OHIO  
Elevation: 271 m.  
Latitude: 38.6782°N  
Longitude: 83.20602°W (NAD83)  
Locality: Pond Run Quad.  
Herbarium Specimen: yes  
Plant associates: *Magnolia tripetala*, *Carpinus caroliniana*, *Sassafras albidum*, *Acer saccharum*, and *Platanus occidentalis*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon Collection Number: JDC/MT/2009/106/256

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Scientific Name: *Magnolia tripetala* (L.) L.  
Date: 17 October 2009  
County, State: SCIOTO COUNTY, OHIO  
Elevation: 271 m.  
Latitude: 38.6782°N  
Longitude: 83.20602°W (NAD83)  
Locality: Pond Run Quad.  
Herbarium Specimen: yes  
Plant associates: *Betula lenta*, *Carpinus caroliniana*, *Sassafras albidum*, *Acer saccharum*, and *Platanus occidentalis*  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/RC/2009/107/257  
Scientific Name: *Rhus copallinum* L.  
Date: 17 October 2009  
County, State: SCIOTO COUNTY, OHIO  
Elevation: 201 m.  
Latitude: 38.8582°N  
Longitude: 83.13593°W (NAD83)  
Locality: Otway Quad.  
Herbarium Specimen: yes  
Plant associates: *Quercus* sp., *Carya* sp., *Carpinus caroliniana*, and *Sassafras albidum*.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/HA/2009/108/258  
Scientific Name: *Hydrangea arborescens* L.  
Date: 18 October 2009  
County, State: BROWN COUNTY, OHIO  
Elevation: 265 m.  
Latitude: 38.7826°N  
Longitude: 83.85218°W (NAD83)  
Locality: Russellville Quad.  
Herbarium Specimen: yes  
Plant associates: *Aesculus flava*, *Liriodendron tulipifera*, *Fraxinus americana*, and *Quercus* sp.  
Biomass Type (seed, plant, cutting, herbarium specimen): HS and SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/GD/2009/109/259  
Scientific Name: *Gymnocladus dioica* (L.) K. Koch  
Date: 18 October 2009  
County, State: BROWN COUNTY, OHIO  
Elevation: 265 m.  
Latitude: 38.8416°N  
Longitude: 83.84454°W (NAD83)  
Locality: Russellville Quad.  
Herbarium Specimen: no  
Plant associates: *Lonicera maackii*, *Robinia pseudoacacia*, *Fraxinus americana* and *Acer saccharum*.  
Biomass Type (seed, plant, cutting, herbarium specimen): SD  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/VR/2009/110/260  
Scientific Name: *Viburnum rufidulum* Raf.  
Date: 18 October 2009  
County, State: BROWN COUNTY, OHIO  
Elevation: 224 m.  
Latitude: 38.7664°N  
Longitude: 83.71289°W (NAD83)  
Locality: Decatur Quad.  
Herbarium Specimen: no  
Plant associates: *Fraxinus quadrangulata*, *Acer saccharum*, *Viburnum molle*, *Viburnum prunifolium*, *Cornus florida*, *Staphylea trifolia*, *Quercus* sp., *Celtis occidentalis*, and *Cercis canadensis*.  
Biomass Type (seed, plant, cutting, herbarium specimen): SD and HS  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/VM/2009/111/261  
Scientific Name: *Viburnum molle* Michx.  
Date: 18 October 2009  
County, State: BROWN COUNTY, OHIO  
Elevation: 224 m.  
Latitude: 38.7664°N  
Longitude: 83.71289°W (NAD83)  
Locality: Decatur Quad.  
Herbarium Specimen: yes  
Plant associates: *Fraxinus quadrangulata*, *Acer saccharum*, *Viburnum rufidulum*, *Viburnum prunifolium*, *Cornus florida*, *Staphylea trifolia*, *Quercus* sp., *Celtis occidentalis*, and *Cercis canadensis*.  
Biomass Type (seed, plant, cutting, herbarium specimen): SD and HS  
Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/ST/2009/112/262

Scientific Name: *Staphylea trifolia* L.

Date: 18 October 2009

County, State: BROWN COUNTY, OHIO

Elevation: 224 m.

Latitude: 38.7664°N

Longitude: 83.71289°W (NAD83)

Locality: Decatur Quad.

Herbarium Specimen: yes

Plant associates: *Fraxinus quadrangulata*, *Acer saccharum*, *Viburnum rufidulum*, *Viburnum prunifolium*, *Cornus florida*, *Quercus* sp., *Celtis occidentalis*, and *Cercis canadensis*.

Biomass Type (seed, plant, cutting, herbarium specimen): SD and HS

Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/EA/2009/113/263

Scientific Name: *Euonymus atropurpureus* Jacq.

Date: 18 October 2009

County, State: ADAMS COUNTY, OHIO

Elevation: 238 m.

Latitude: 38.7578°N

Longitude: 83.67458°W (NAD83)

Locality: Decatur Quad.

Herbarium Specimen: yes

Plant associates: *Frangula caroliniana*, *Quercus* sp., *Celtis occidentalis*, *Juniperus* sp., and *Acer negundo*.

Biomass Type (seed, plant, cutting, herbarium specimen): SD and HS

Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number:

Scientific Name: *Frangula caroliniana* (Walter) A. Gray

Date: 18 October 2009

County, State: ADAMS COUNTY, OHIO

Elevation: 238 m.

Latitude: 38.7578°N

Longitude: 83.67458°W (NAD83)

Locality: Decatur Quad.

Herbarium Specimen: yes

Plant associates: *Euonymus atropurpureus*, *Quercus* sp., *Celtis occidentalis*, *Juniperus* sp., and *Acer negundo*.

Biomass Type (seed, plant, cutting, herbarium specimen): HS

Collectors: Jeffrey D. Carstens and Martin Scanlon

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Collection Number: JDC/RS/2009/114/264

Scientific Name: *Rosa carolina* L.

Date: 18 October 2009

County, State: ADAMS COUNTY, OHIO

Elevation: 233 m.

Latitude: 38.8399°N

Longitude: 83.3618°W (NAD83)

Locality: Blue Creek Quad.

Herbarium Specimen: yes

Plant associates: *Rosa multiflora*, *Sassafras albidum*, *Juniperus* sp., and *Viburnum prunifolium*.

Biomass Type (seed, plant, cutting, herbarium specimen): SD and HS

Collectors: Jeffrey D. Carstens and Martin Scanlon

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/RT/2009/115/265

Scientific Name: *Rhus typhina* L.

Date: 19 October 2009

County, State: ERIE COUNTY, OHIO

Elevation: 205 m.

Latitude: 41.35142°N

Longitude: 82.47720°W (NAD83)

Locality: T5N, R23W, NE1/4 NW1/4 Sec. 2, Berlin Heights Quad.

Herbarium Specimen: no

Plant associates: *Quercus palustris*, *Quercus bicolor*, *Fraxinus americana*, *Cornus florida*, *Viburnum dentatum*, *Acer saccharum*, *Carya* sp., and *Corylus americana*.

Biomass Type (seed, plant, cutting, herbarium specimen): SD

Collectors: Jeffrey D. Carstens

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Collection Number: JDC/PV/2009/116/266

Scientific Name: *Prunella vulgaris* L.

Date: 19 October 2009

County, State: ERIE COUNTY, OHIO

Elevation: 209 m.

Latitude: 41.35871°N

Longitude: 82.70800°W (NAD83)

Locality: T5N, R23W, NW1/4 NE1/4 Sec. 3, Kimball Quad.

Herbarium Specimen: no

Plant associates: *Schizachyrium scoparium*, *Rubus* sp., *Quercus palustris*, *Solidago* sp., *Aster* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): SD

Collectors: Jeffrey D. Carstens

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Collection Number: JDC/HS/2009/117/267

Scientific Name: *Hypericum drummondii* (Grev. & Hook.) Torr. & A. Gray

Date: 19 October 2009

County, State: ERIE COUNTY, OHIO

Elevation: 209 m.

Latitude: 41.35871°N

Longitude: 82.70800°W (NAD83)

Locality: T5N, R23W, NW1/4 NE1/4 Sec. 3, Kimball Quad.

Herbarium Specimen: no

Plant associates: *Schizachyrium scoparium*, *Rubus* sp., *Quercus palustris*, *Solidago* sp., *Aster* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): SD

Collectors: Jeffrey D. Carstens

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Collection Number: JDC/HS/2009/118/268

Scientific Name: *Hypericum gentianoides* (L.) Britton et al.

Date: 19 October 2009

County, State: ERIE COUNTY, OHIO

Elevation: 209 m.

Latitude: 41.35871°N

Longitude: 82.70800°W (NAD83)

Locality: T5N, R23W, NW1/4 NE1/4 Sec. 3, Kimball Quad.

Herbarium Specimen: no

Plant associates: *Schizachyrium scoparium*, *Rubus* sp., *Quercus palustris*, *Solidago* sp., *Aster* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): SD

Collectors: Jeffrey D. Carstens

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# List of Vouchers and/or Germplasm Collected

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Collection Number: JDC/VP/2009/119/269

Scientific Name: *Viburnum prunifolium* L.

Date: 19 October 2009

County, State: FULTON COUNTY, OHIO

Elevation: 224 m.

Latitude: 41.55411°N

Longitude: 84.36907°W (NAD83)

Locality: T7N, R4E, NW1/4 NE1/4 Sec. 23, Archbold Quad.

Herbarium Specimen: yes

Plant associates: *Fraxinus nigra*, *Acer rubrum*, *Acer saccharinum*, *Cercis canadensis*, *Fraxinus americana*, *Acer negundo*, *Platanus occidentalis*, *Carpinus caroliniana*, *Liquidambar styraciflua*, *Celtis occidentalis*, *Ulmus* sp., and *Quercus* sp.

Biomass Type (seed, plant, cutting, herbarium specimen): SD and HS

Collectors: Jeffrey D. Carstens

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# List of Vouchers and/or Germplasm Collected

Taxonomy	Seeds	Voucher	NPGS #	Collection #
Betula lenta	X	X	A 30360	JDC/BL/2009/105/255
<b>Carpinus caroliniana</b>	<b>X</b>	<b>X</b>	<b>A 30361</b>	<b>JDC/CC/2009/086/236</b>
Celastrus scandens	X		A 30362	JDC/CS/2009/102/252
Cephalanthus occidentalis	X	X	A 30363	JDC/CO/2009/084/234
Cephalanthus occidentalis	X	X	A 30364	JDC/CO/2009/101/251
Cercis canadensis	X	X	A 30365	JDC/CC/2009/095/245
<b>Chionanthus virginicus</b>		X		
Cornus alternifolia		X		
Cornus amomum subsp. obliqua	X	X	A 30366	JDC/CA/2009/090/240
<b>Cornus florida</b>	<b>X</b>	<b>X</b>	<b>A 30367</b>	<b>JDC/CF/2009/088/238</b>
<b>Cornus florida</b>	<b>X</b>	<b>X</b>	<b>A 30368</b>	<b>JDC/CF/2009/091/241</b>
<b>Cornus florida</b>	<b>X</b>	<b>X</b>	<b>A 30369</b>	<b>JDC/CF/2009/097/247</b>
Euonymus atropurpureus	X	X	A 30370	JDC/EA/2009/113/263
<b>Frangula caroliniana</b>		X		
Gymnocladus dioicus	X		A 30371	JDC/GD/2009/074/224
Gymnocladus dioicus	X		A 30372	JDC/GD/2009/109/259
<b>Hydrangea arborescens</b>	<b>X</b>	<b>X</b>	<b>A 30373</b>	<b>JDC/HA/2009/081/231</b>
<b>Hydrangea arborescens</b>	<b>X</b>		<b>A 30374</b>	<b>JDC/HA/2009/083/233</b>
<b>Hydrangea arborescens</b>	<b>X</b>	<b>X</b>	<b>A 30375</b>	<b>JDC/HA/2009/096/246</b>
<b>Hydrangea arborescens</b>	<b>X</b>	<b>X</b>	<b>A 30376</b>	<b>JDC/HA/2009/108/258</b>
Hypericum drummondii	X		A 30377	JDC/HS/2009/117/267
Hypericum gentianoides	X		A 30378	JDC/HS/2009/118/268
<b>Lindera benzoin</b>	<b>X</b>	<b>X</b>	<b>A 30379</b>	<b>JDC/LB/2009/089/239</b>
<b>Magnolia tripetala</b>	<b>X</b>	<b>X</b>	<b>A 30380</b>	<b>JDC/MT/2009/106/256</b>
Monarda fistulosa	X	X	A 30381	JDC/MF/2009/093/243
<b>Oxydendrum arboreum</b>	<b>X</b>	<b>X</b>	<b>A 30382</b>	<b>JDC/OA/2009/085/235</b>
<b>Oxydendrum arboreum</b>	<b>X</b>	<b>X</b>	<b>A 30383</b>	<b>JDC/OA/2009/087/237</b>
<b>Oxydendrum arboreum</b>	<b>X</b>	<b>X</b>	<b>A 30384</b>	<b>JDC/OA/2009/098/248</b>
<b>Oxydendrum arboreum</b>	<b>X</b>	<b>X</b>	<b>A 30385</b>	<b>JDC/OA/2009/100/250</b>
<b>Oxydendrum arboreum</b>	<b>X</b>	<b>X</b>	<b>A 30386</b>	<b>JDC/OA/2009/103/253</b>
Physocarpus opulifolius	X	X	A 30387	JDC/PO/2009/104/254
Prunella vulgaris	X		A 30388	JDC/PV/2009/092/242
Prunella vulgaris	X		A 30389	JDC/PV/2009/116/266
<b>Rhododendron maximum</b>	<b>X</b>	<b>X</b>	<b>A 30390</b>	<b>JDC/RM/2009/080/230</b>
Rhus copallinum	X	X	A 30391	JDC/RC/2009/107/257
Rhus typhina	X		A 30392	JDC/RT/2009/099/249
Rhus typhina	X		A 30393	JDC/RT/2009/115/265
<b>Rosa carolina</b>	<b>X</b>	<b>X</b>	<b>A 30394</b>	<b>JDC/RS/2009/114/264</b>
Staphylea trifolia	X	X	A 30395	JDC/ST/2009/112/262
<b>Viburnum acerifolium</b>	<b>X</b>	<b>X</b>	<b>A 30397</b>	<b>JDC/VA/2009/077/227</b>
<b>Viburnum acerifolium</b>	<b>X</b>	<b>X</b>	<b>A 30398</b>	<b>JDC/VA/2009/078/228</b>
<b>Viburnum molle</b>	<b>X</b>	<b>X</b>	<b>A 30399</b>	<b>JDC/VM/2009/075/225</b>
<b>Viburnum molle</b>	<b>X</b>	<b>X</b>	<b>A 30400</b>	<b>JDC/VM/2009/111/261</b>
<b>Viburnum prunifolium</b>	<b>X</b>	<b>X</b>	<b>A 30401</b>	<b>JDC/VP/2009/076/226</b>
<b>Viburnum prunifolium</b>	<b>X</b>	<b>X</b>	<b>A 30402</b>	<b>JDC/VP/2009/082/232</b>
<b>Viburnum prunifolium</b>	<b>X</b>	<b>X</b>	<b>A 30403</b>	<b>JDC/VP/2009/094/244</b>
<b>Viburnum prunifolium</b>	<b>X</b>	<b>X</b>	<b>A 30404</b>	<b>JDC/VP/2009/119/269</b>
<b>Viburnum rufidulum</b>	<b>X</b>	<b>X</b>	<b>A 30405</b>	<b>JDC/RF/2009/110/260</b>

Items in bold are priority taxa for the Woody Landscape Germplasm Repository.

# REFERENCES

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- Braun, L. 1961. The woody plants of Ohio. Columbus: Ohio State University Press.
- Widrechner, Mark P., Richard A. Larson, and Sharon K. Dragula. 1993. Exploring the deciduous azaleas and elepidote rhododendrons of the midwestern United States. J. Amer. Rhod. Soc. 47: 153-156.